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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

BERNSHTEYN, MICHAEL

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 10/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/531,467

Applicant(s)

KAWAI ET AL.

Examiner

Michael Bernshteyn

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-14 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 07/14/2006
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

1. This Office Action follows a response filed on August 7, 2006. Claim 1 and the specification have been amended, claims 3-14 have been added, and claim 2 has been cancelled.
2. In view of the amendment the rejection of claims 1 and 2 under 35 U. S. C. 102(b) as being anticipated by Sakamoto U. S. Patent 5,726,268) has been withdrawn.
3. Applicant's arguments with respect to claims 1 and 2 have been considered but are moot in view of the new ground(s) of rejection.
4. Claims 1 and 3-14 are pending.

Claim Rejections - 35 USC § 102

5. The test of this section of Title 35 U.S.C. not included in this action can be found in a prior Office Action.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1 and 3-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Masuda et al. (JP 2002-256128).

With regard to the limitations of claims 1 and 3-7, Masuda discloses methacrylic resin composition with inorganic particles, which are selected from the group consisting of **silica, titanium oxide, barium sulfate, calcium carbonate, methacrylic resin, styrene resin, and silicone resin**, or two sorts or more (page 2, [claim 2]). The composition contains 100,000-1,000,000 fine particles having particles size of **0.5-1.0 μm** , which is within the claimed ranges. The composition is suitable for producing a

backlight of a homogeneous liquid crystal display exhibiting a high luminance and a low unevenness in luminance (abstract).

Masuda discloses that **methyl methacrylate polymer** comprising methyl methacrylate units as a primary component, preferably not less than 70% by weight. Methyl methacrylate units may partially be replaced by a **monofunctional unsaturated monomer** unit, which is copolymerizable with methyl methacrylate. The content of the copolymerizable, monofunctional unsaturated monomer unit in the polymer is preferably not less than 0.2% by weight. Examples of copolymerizable, monofunctional unsaturated monomer which forms the monofunctional unsaturated monomer unit include: **2-ethylhexyl methacrylate**, 2-hydroxyethyl methacrylate, butyl methacrylate, benzyl methacrylate, **methyl acrylate**, **ethyl acrylate**, **propyl acrylate**, **butyl acrylate**, etc. Example of the **polyfunctional methacrylate** includes **neopentyl methacrylate** (page 4, [0013]).

With regard to the limitations of claims 9-14, Masuda discloses the transparent material, which can be produced using the mixture of methacrylic resin and particles by injection molding, extrusion molding, etc. which carry out melting kneading and are generally used (page 6, [0020]). The dispersing agent (particle) shown in table 1 was added in examples 1-8 to methacrylic resin, kneading extrusion and the extruded strand were palletized with the extruder with the temperature 240⁰C and screw speed 200 rpm (page 6, [0023]-[0026], Table 1, page 8, [0028]).

7. Claims 1 and 3-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto (U.S. Patent 5,726,268) in view of Masuda et al. (JP 2002-256128).

With regard to the limitations of claims 1, 3 and 5, Sakamoto discloses **methyl methacrylate polymer** comprising methyl methacrylate units as a primary component not less than 50% by weight, preferably **not less than 70% by weight** (abstract, col. 2, lines 14-16). Methyl methacrylate units may partially be replaced by a **monofunctional unsaturated monomer** unit, which is copolymerizable with methyl methacrylate (col. 2, lines 19-21). The content of the copolymerizable, monofunctional unsaturated monomer unit in the polymer is preferably not less than 1% by weight, more preferably **not less than 3% by weight** (col. 2, lines 26-30). Examples of copolymerizable, monofunctional unsaturated monomer which forms the monofunctional unsaturated monomer unit include: methacrylates, such as ethyl methacrylate, propyl methacrylate, butyl methacrylate, and benzyl methacrylate; acrylates, such as **methyl acrylate, ethyl acrylate, propyl acrylate, butyl acrylate, and 2-ethylhexyl acrylate**, etc. (col. 2, lines (45-67)).

The methyl methacrylate polymer can be obtained by polymerizing the monofunctional monomer with a predetermined amount of a monomer, which forms polyfunctional structural unit, and further a chain transfer agent and/or a polymerization initiator according to the requirements (col. 4, lines 10-15). The monomer, which forms polyfunctional structural unit, is usually a **polyfunctional monomer**, which has at least two double bonds in its molecule and is copolymerized with methyl methacrylate. Content of the polyfunctional monomer is generally from 0.02 to 0.3%, preferably **from 0.05 to 0.2% by weight** in the polymer; it is within the claimed range. Examples of the polyfunctional monomer include: esters of ethylene glycol and of oligomers of ethylene

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glycol having two or more hydroxyl groups esterified by acrylic acid or methacrylic acid, such as **ethylene glycol di(meth)acrylate**, diethylene glycol di(meth)acrylate, triethylene glycol di(meth)acrylate, tetraethylene glycol di(meth)acrylate, etc. (col. 4, lines 20-43).

Sakamoto discloses that a variety of **other agents** generally used for acrylic resins, for example, mold parting agents, ultraviolet light absorbers, coloring agents, antioxidants, heat stabilizers, and plasticizers, may be added to the methyl methacrylate polymer, for example, **another acrylic resin** may be added to the methyl methacrylate polymer for better impact resistance and/or heat resistance (col. 6, lines 1-8). Different resins are described as diffusing agents in the specification (page 5, lines 16-23).

With regard to the limitations of claims 4, 6 and 7, Sakamoto does not disclose that the particulate diffusing agent comprises inorganic particles.

Masuda discloses the methacrylic resin composition with inorganic particles, which are selected from the group consisting of silica, titanium oxide, barium sulfate, calcium carbonate, methacrylic resin, styrene resin, and silicone resin, or two sorts or more (page 2, [claim 2]). The composition contains 100,000-1,000,000 fine particles having particles size of 0.5-1.0 μm , which is within the claimed ranges (abstract).

Both references are analogous art because they are from the same field of endeavor concerning new methacrylic resin compositions, which are suitable for producing light guide plate.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate inorganic particles, which are selected

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from the group consisting of silica, titanium oxide, barium sulfate, calcium carbonate, etc. having particles size of 0.5-1.0 μm in the adjusted amount as taught by Masuda in Sakamoto's methacrylic resin composition in order to obtain a methacrylic resin composition, which is suitable for producing a back light of a homogeneous liquid crystal display exhibiting a high luminance and a low unevenness in luminance (JP'128, abstract), and thus to arrive at the subject matter of instant claims 4, 6 and 7.

With regard to the limitations of claim 8, Sakamoto discloses that methacrylate polymers have sufficient rigidity and excellent transparency and weather resistance, and thus go into a variety of applications through injection molding or extrusion; for example, as injection molded objects, such as lamp lenses and meter covers of automobiles, lenses of eyeglasses, and **light guide members**, or as **extruded sheets**, such as sign-boards and name-plates (col. 1, lines 10-16).

8. It is worth to mention that Examiner has cited particular columns and line numbers or figures in the references as applied to the claims for the convenience of the applicant. Although the specified citations are representative of the teaching in the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant, in preparing the responses, **to fully consider the references in entirety as potentially teaching all or part of the claimed invention**, as well as the context of the passage as taught by the prior art or disclosed by the examiner.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Bernshteyn whose telephone number is 571-272-2411. The examiner can normally be reached on M-F 8-5:30.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 571-272-1114. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael Bernshteyn
Examiner
Art Unit 1713

MB
10/14/2006


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